

REMARKS

Attached hereto is a Request for an Extension of Time and the appropriate fee.

The Office Action indicated that Claims 33 and 34 would be allowed if rewritten in independent form. It is respectfully requested that this indication of allowance of these claims be held in abeyance until the following comments are considered.

The applicants wish to thank Examiner Nguyen for the courtesy of a telephone interview on the above-identified case. Examiner Nguyen indicated that any amendment of the claims may raise new issues, but that she was receptive to a further telephone conference if a request for continued examination was filed with a Rule 116 amendment. There was no agreement as to any additional allowed subject matter during the telephone conference.

Applicants further wish to thank Examiner Nguyen for the courtesy of bringing to their attention the typographical errors associated with Claims 49 and 54-55. These claims have now been appropriately amended in the manner understood by the Examiner.

The present invention is directed to a powder compression holding and assembling system, including a rotary disc and insertion assembly station, as shown in Figures 7 and 8, that can load a pellet 13 into a dry cell casing as shown in Figure 9. The present invention addresses the issue of providing more electrode material while lessening the number of pellets required to fill a dry cell casing or container as the dry cell casing travels in a concentric path with a rotary die arrangement. The casing can accordingly be filled as shown in Figure 6 of the present application.

The present invention not only provides electrode pellets that can be manufactured with less wear on the die, the pellets can also be immediately ejected from the die into a casing that is

positioned outside of and aligned with the die so that the electrode pellet is removed from the die with a center molding pin stabilizing the positioning of the moldable electrode pellet.

The *Korsch* (U.S. Patent No. 4,057,381) had previously been erroneously cited as disclosing a plurality of "loading units" when, in fact, the elements were actually guides to control the movement of the bottom and top dies 4 and 5 while elements 13 and 14, as shown in Figure 2, were rollers that moved in slotted holes on the outside of the die 11, see Column 3, Lines 23-26. The center punch, as shown, for example, in Figure 4, was originally mounted to a fixed matrix table as noted in Column 4, Lines 20-28.

In addition, the *Korsch* reference was attempting to resolve a problem of density variation in cup-shaped products. It did not address the issue of eliminating or minimizing the taper of tubular or cylindrical electrode pellets, nor did it suggest any manufacturing efficiency in directly loading such electrode pellets into casings whether the casing required one or more pellets.

Claims 29-32, 35-39 and 47-55 were rejected under 35 U.S.C. § 103 over the newly cited *Ribordy et al.* (U.S. Patent No. 5,036,581) in view of the *Korsch* (U.S. Patent No. 4,057,381). The *Ribordy et al.* reference is of interest in disclosing one manner of manufacturing a dry cell battery where a steel casing actually forms the die so that the cathode material is directly molded within the casing.

As noted in Column 1, a problem that was addressed in the *Ribordy et al.* reference at Lines 56-64 was to minimize the presence of any cathode mix between the anode core and the casing end. To achieve this purpose, it was contended that using a casing in an inverted configuration so that it was extended over a chamber containing a supply of loose cathode material with the cathode powder material moved upward into the casing and then subsequently

compacted therein would keep a loss of the cathode material to a minimum. See Column 2, Lines 41-52.

Reference can be made to Figures 1-9 wherein a lower chamber 80 is filled with a fluent cathode material and then, as shown in Figures 2 and 3, a cylindrical casing 30, for example, of steel, see Column 6, Lines 47-60, is positioned to become the actual die cavity. Subsequently, as shown in Figures 4-6, a pin 72 is inserted into the casing 30 so that it is immediately positioned adjacent to terminal 93 to thereby minimize the amount of cathode material that will be adjacent to the terminal end. A shoulder punch 70 is then driven upward to compact the cathode material 40 directly within the casing. See Column 8, Lines 13-30.

Thus, the *Ribordy et al.* reference teaches the desirability of directly molding cathode material within a steel casing and then ejecting the casing as shown in Figure 9. The *Ribordy et al.* reference does not teach a cylindrical die with powder material molded by any pressure engagement between an upper plunger and a lower plunger that are driven by pressure rollers to create a pellet. Additionally, there is no teaching of operating units for transferring and retractably positioning a case above and in an alignment with the die of each molding unit so that a molded pellet is then subsequently operatively inserted into the casing. The *Ribordy et al.* reference is not directed to providing moldable pellets within a casing since it teaches forming only one unitary cathode material directly within a steel cylindrical casing.

The Office Action contended that the cylindrical die 68 which is primarily a fill chamber for the cathode material was equivalent to our die 3. Actually, the casing 30 is equivalent to our die cavity. The Office Action further contended that the upper plunger 58 was equivalent to our plunger 6 shown, for example, in Figure 4B of our drawings. A review of the teaching of Figure 3 of the *Ribordy et al.* drawings, however, shows that the element 58 is actually an anvil rod 58

which simply holds the closed end 91 of the casing. See Column 7, Lines 14-29. The casing is further supported by a sleeve 68, and once supported, neither the sleeve nor the anvil pin moves. If the anvil pin moved, it would deform the casing 30. Accordingly, the only operative compacting plunger is the lower shoulder punch 70.

As can be readily appreciated, the *Ribordy et al.* reference, while of interest in molding cathode material directly in an open ended dry cell battery casing, does not teach specific elements defined in our independent claims, such as Claim 29 and new Claim 56.

Additionally, neither the *Ribordy et al.* nor the *Korsch* reference teaches molding a pellet and then subsequently inserting the molded pellet into the casing in the manner defined in our presently pending independent and dependent claims.

Since the citation of specific elements in the *Ribordy et al.* reference do not perform the same function as that of our claimed invention, it is respectfully submitted that a person of ordinary skill in this field would not find any combination of a *Ribordy et al.* reference with the *Korsch* reference as being obvious.

It appears that there is a lack of a teaching reference and that the only teaching reference is that of the present application to formulate this rejection. For example, it is asserted in the Office Action that a center pin inserts the pellet material into the casing 30, when actually the center pin is driven into the casing to provide a minimum of cathode material against the terminal end. There is no pellet formed exterior of the casing in a manner similar to that set forth in our present invention.

The conclusion that a person of ordinary skill in the art would use a pair of pressure rollers for pressing plungers as taught by *Korsch* and the *Ribordy et al.* disclosure is false. If a pair of pressure rollers were utilized in a similar manner, it would crush the casing 30 and

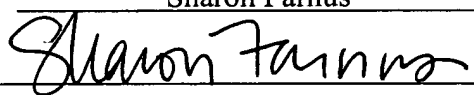
certainly would not improve the compression of the powder material in the die cavity. Thus, it would appear that there is no specific teaching or suggestion for making this combination, and if such a combination was made, the device would be inoperative for the purpose of both the present invention and that of the *Ribordy et al.* disclosure.

[I]t is generally settled that the change in prior art device which makes the device inoperative for its intended purpose cannot be considered to be an obvious change

Hughes Aircraft Co. v. United States, 215 U.S.P.Q. 787,
804 (Ct.Cl. Trial Div. 1982).

Accordingly, it is believed that the present claims more than adequately distinguish over the cited references are in condition for allowance for allowance. During the telephone conference with the Examiner, she indicated that she was receptive to a further conference on this matter when she would have an opportunity to review the Rule 116 Amendment, and accordingly, the applicants would appreciate setting a date for such a conference.

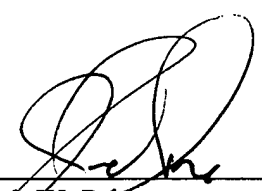
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By: Sharon Farnus

Signature

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Very truly yours,

SNELL & WILMER L.L.P.



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